III. STRUCTURE SHARING

48. Each of the RBOCs asserts that loop prices should reflect their actual, embedded structure sharing percentages.[67] As I have previously testified, however, it would be inappropriate to use the ILECs' embedded sharing percentages as a basis for determining structure sharing percentages in a forward-looking network. The ILECs' embedded percentages are far lower than those which would exist in a forward-looking market.[68] Existing sharing percentages merely reflect the sharing decisions that the ILECs made in a monopoly environment, with the incentives of a rate-based regulated utility. Thus, the ILECs' historical experience as monopolies provides no sound basis for any assumption that their actual structure sharing percentages equal those of efficient service providers operating in a competitive, forward-looking environment.

49. In an effort to bolster their argument that embedded structure sharing percentages should be used in calculating UNE prices, the RBOCs contend that any structure sharing percentages higher than their "real-world experience" would be improper because their

[67] *See, e.g.,* Verizon at v, 47; SBC at 62; BellSouth at 26; Qwest at 34.

[68] Riolo Opening Decl. ¶ 81. Qwest, for example, asserts that between 1998 and 2001, the amount of structure sharing that it "experienced" was only 22%. Qwest at 34. The reliability of Qwest's claim is highly suspect, given Qwest's failure to describe what the 22% figure represents, the basis for this figure, or a description of the methodology and documents that Qwest used to calculate it. But even assuming that Qwest's 22% figure is credible, its historical sharing experience is of little use in determining forward-looking sharing estimates. For example, when Qwest installed much of its loop plant, there were no CATV carriers with which to share placement costs. Moreover, given that Qwest historically operated under a rate of return regulatory scheme that permitted it to recover all of its costs, it lacked a strong incentive to operate in the most efficient manner.

actual sharing opportunities are limited.[69] The RBOCs, however, do not seriously dispute that they have substantial opportunities for sharing of *aerial* structure. The alleged lack of opportunities that they describe focuses on *buried* and *underground* cable.[70]

50. Even as to buried and underground cable, the RBOCs' allegations of limited structure sharing opportunities are flatly wrong.[71] The RBOCs argue that such sharing is difficult, and rare, because: (1) the networks of other utilities and carriers are already in place, and sharing would be difficult even in new developments; (2) construction must be coordinated; (3) any sharing arrangement would require security arrangements for the participating parties' equipment and plant; and (4) technical and safety considerations preclude the placement of

[69] *See, e.g.*, Verizon at 47. Verizon also contends that "the extent to which the incumbent shares structure costs with other entities . . . [is] unlikely to change significantly at any time in the foreseeable future." Verizon at 46. Verizon is wrong. In the long-run, the structure sharing percentages of the incumbents should and would increase as municipalities continue to enact ordinances and regulations requiring structure sharing, and utilities and other carriers seek to reduce their placement costs by participating in structure sharing arrangements. Indeed, Qwest's assertion that aerial plant is now declining because municipalities are requiring the undergrounding of facilities (Qwest at 35) is a tacit admission that structure sharing opportunities in the long-run are subject to change to reflect regulatory requirements.

[70] *See, e.g.*, Riolo Opening Decl. ¶¶ 87-89 (describing opportunities for sharing of pole structure); Verizon at 47 ("wide scale opportunities to share structure costs with third parties in the real world are limited, *particularly* for buried and underground cable") (emphasis added); BellSouth at 26 (emphasizing lack of sharing opportunities for buried and underground cable).

[71] Qwest's assertion that an AT&T witness gave "unrefuted testimony" that "structure sharing would not occur for cable placed by plowing" is an exercise in sheer fantasy. *See* Qwest at 26. The witness, Douglas Denney, testified that he was not qualified to discuss that issue. *See* Arizona Corporation Commission Cost Docket, No. T-0000A-00-0194 ("*Arizona Cost Docket*"), Tr. Vol. VI, July 27, 2001, at 1424 (testimony of Douglas Denney).

electrical cable in the same trench with telephone cables, and require that the cables be separated by a minimum distance.[72] These assertions are without merit.

51. First, the ILECs' argument that structure sharing is not feasible because the networks of other utilities and carriers are already in place is a non-starter. As AT&T has explained, the ILECs' argument is based upon a short-run costing perspective.[73] However, if structure sharing opportunities are assessed based upon a short-run time horizon, then it logically follows that so too must the unshared costs of the support structure. Because the ILECs' investment in support structure is sunk when made, the short-run incremental cost of the support structure is close to zero.[74] As Mr. Klick explains in his Reply Declaration, the ILECs cannot have it both ways. They cannot assert that UNE rates should reflect their embedded structure sharing percentages and simultaneously ignore the effects of the sunk nature of their investments in support structure.

52. Additionally, as I have previously shown, in the long-run – the time horizon encompassed in TELRIC – substantial opportunities for sharing of buried and

[72] *See, e.g.*, Verizon at 47; SBC at 62; BellSouth at 26; Qwest at 33-34. BellSouth, without elaboration, also cites "available space considerations" as a factor that makes it even more difficult to share buried and underground structure. BellSouth at 26; *see also* NERA (BellSouth) Decl. ¶ 76. The precise nature of the "available space considerations" to which BellSouth refers remains unclear. To the extent that BellSouth is referring to the lack of available space for *any* carriers or utilities desiring to place underground or buried facilities, the lack of such space would act as an incentive for such carriers to engage in sharing.

[73] AT&T at 10.

[74] *Id.* at 10, 43.

underground structure exist in both existing and new developments.[75] SBC's assertion that "[t]here are complications and costs to sharing that make it limited even in new developments"[76] is simply contrary to the facts. In new residential developments, developers generally provide, free of charge, the buried trench and structure within which the facilities of telecommunications carriers are placed.[77] Even in the case of existing developments, there are today, and will be in the future, numerous opportunities for the sharing of costs with utility companies, developers, municipalities and CLECs. For example, power companies often rebuild or replace their facilities, CATV companies frequently upgrade their networks, and road widenings often require companies that share space on poles to move their facilities underground.[78]

53. The ILECs also contend that buried and underground structure sharing is extremely limited because the construction plans of other utilities do not coincide precisely (in terms of time and location) with those of the ILECs, and the need to coordinate excavations and trench construction significantly increases the time required to complete installation and the ILECs' costs.[79] The ILECs ignore, however, that many municipalities require or strongly encourage sharing of underground or buried structure, and require utilities or carriers to provide

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[75] Riolo Opening Decl. ¶¶ 87-107.

[76] SBC at 62 n.94.

[77] Riolo Opening Decl. ¶ 91.

[78] *Id.* ¶ 89. In many existing developments where pole lines were originally installed in the back yards of residential customers, carriers and utilities have increasingly decided to move those lines to the customers' front yards to make the lines more accessible – thereby creating additional opportunities for sharing.

[79] *See* Verizon at 47.

advance notice of proposed excavations so that other parties can participate in such projects wherever possible.[80] The frivolity of the ILECs' arguments is also illustrated by their memberships on utility coordinating committees which are designed to facilitate the very coordination that the incumbents claim is impossible to achieve.[81]

54. Furthermore, contrary to the RBOCs' claims, the need for coordination does not substantially increase the time and costs of installation. In a typical buried or underground sharing arrangement, each party lays its own cable within a very short time after the other parties have completed laying their own cable. Thus, for example, if an electric company, an ILEC, and a cable television company agreed to lay cable in the same trench, the parties might agree that the electric company would lay its cable first in the trench, followed by the ILEC and then by the CATV company. After the electric company completed its work on the portion of the trench that is open and available for cable installation (and sufficient dirt had been added to separate that cable from the telephone and CATV cable), the electric company would notify the ILEC, which would then proceed to install its own cable. Once the ILEC had finished laying its cable, the CATV company would lay its cable. Usually, only a brief period (perhaps a few hours) transpires between the completion of one company's work and the commencement of the next participants' work. Generally, all of the parties complete their cable installation within a single day. Thus, the sharing arrangement causes minimal delay in the ILEC's installation of its own cable.

[80] Riolo Opening Decl. ¶¶ 96-100.

[81] *Id.* ¶ 95.

55. After the cable has been laid by all parties, each party is responsible for splicing and "turning up" its own cable after the trench has been covered or the conduit has been otherwise completed. Each party performs those tasks independently of the other, at such time as it chooses. Thus, one party need not wait for the other parties to splice and turn up their own cables before that party can proceed to use its own cable to serve customers.

56. As this discussion indicates, the only "coordination" that is actually required in a structure sharing arrangement is minimal. Each party to the arrangement appoints a coordinator, who reaches agreement with the other coordinators as to the sequence of installation (*i.e.*, which party will install its cable first, which party will install its cable next, etc.). Such agreement is usually easy to reach, since each party can begin laying its own cable soon after another party has completed its work. Once that timetable is arranged, the coordinators will keep one another apprised of the progress of the work. Thus, for example, whenever a party finishes laying its own cable, the coordinator for that party will advise the other coordinators. However, the number of such communications is limited, and the time consumed by such communications is relatively short.

57. These facts belie any notion that the need for coordination can materially increase the time and costs of installation. Even assuming for the sake of argument that the need for coordination increases costs, those costs are almost certainly offset (and exceeded) by the costs that each of the participants to the sharing arrangement – including the ILEC – save by participating in the sharing arrangement, rather than building their own facilities independently (where they would bear the entire cost).

58. In a feeble effort to buttress its argument that coordination materially increases installation costs, Verizon cites a single construction project – the conduit installation project in Georgetown – as the quintessential example of prohibitively high costs associated with structure sharing arrangements. Verizon contends that, "in part" due to the need to coordinate multiple parties' construction crews, the costs per foot of installing conduit in its ongoing conduit installation project in Georgetown have exceeded the costs per foot of installing conduit in other projects where Verizon has been the only utility involved.[82] These arguments founder on a number of fronts.

59. In this regard, Verizon neither describes what portion of the additional costs are attributable to coordination requirements, as opposed to other causes, nor provides any empirical evidence or comparative data demonstrating how the nature, scope, and costs of the Georgetown project compare to those of other unidentified installation projects to which it refers. Thus, Verizon's unsupported and highly-partisan assertions regarding the prohibitive costs of coordination in the Georgetown Project are entitled to no weight.

60. Indeed, Verizon's current characterization of the Georgetown Project is at least highly selective and self-serving. According to press reports, after "multiple manhole explosions in 2000 sent sewer covers flying and knocked out neighborhood power grids," PEPCO joined forces with Washington Gas, the District of Columbia Water and Sewer Authority, Verizon, and the District of Columbia Department of Transportation[83] in a four-year,

[82] Verizon at 47.

[83] Clarence Williams, "A Gift for M Street: Repairs Nearly Done," *The Washington Post*,
(footnote continued on next page)

two-phased, comprehensive renovation of the underground utility infrastructure in Georgetown which involves renovations to M Street, a major commuter route from the Virginia suburbs, as well as to Wisconsin Avenue. Significantly, "[t]he Georgetown Project is the first project of its type"[84] and "represents an *unprecedented* level of cooperation"[85] among the participants involving a major upgrade to the underground utility system in a mixed-use, historical district with 3,346 households and over 350 storefronts in the trade area, and which attracts approximately 17 million tourists annually.[86] In order to minimize the impact of excavation on businesses, residents, and visitors, the vast majority of work in the Georgetown Project is conducted on weekday nights between the hours of 10:00 p.m. and 8:00 a.m.,[87] and no work is conducted during weekends and holidays.[88]

61. The Georgetown Project also has been hampered by the above-average levels of precipitation that the Washington area has experienced. For example, average annual snowfalls in Washington, D.C. total 18 inches; however, in 2003 alone, Washington received 40 inches of snow. Not only was 2003 "noteworthy for significant snowfall," but the annual precipitation in Washington in 2003 "was the largest annual precipitation total in Washington

(footnote continued from previous page)
December 11, 2003 at DZ04.

[84] http://www.thegeorgetownproject.org/displayContent.asp?Keyword=FAQs.

[85] http://www.thegeorgetownproject.org/displayContent.asp?Keyword=Project Profiles.

[86] http://www.georgetowndc.com/demographic.php.

[87] http://www.thegeorgetownproject.org/.

[88] http://www.thegeorgetownproject.org/displayContent.asp?Keyword=ProjectOverview. An "annual holiday construction moratorium" was instituted between November 27, 2002 and January 5, 2003. http://www.thegeorgetownproject.org/displayContent.asp?

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since 1889."[89] Although Washington typically experiences approximately 112 days of precipitation annually, in 2003, the area experienced approximately 140 days of precipitation.[90] Worse yet, during 2003, the Washington area sustained severe property damage and exceptionally long power outages as a result of Tropical Storm Isabel. The unusually high levels of precipitation in Washington "cost the [Georgetown] project 48 work days" in 2003.[91] Thus, even assuming *arguendo* that Verizon is correct in asserting that the installation costs in the Georgetown Project have exceeded other projects where Verizon has been the only utility involved, the increased costs for the Georgetown Project could well be attributable to the unique working conditions that are required in this bustling historical, commercial, and residential district, as well as the less than optimal weather conditions that the participants faced during the course of this "unprecedented" project.

62. Significantly, although Verizon in its assault on structure sharing arrangements insists that the need for close coordination renders it impossible to engage in structure sharing arrangements, these assertions are belied by Verizon's own public statements heralding the success of the Georgetown Project. Notwithstanding all of the challenges that the Georgetown Project participants have faced, the Executive Management Committee – which is

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NewsItemID=108&Keyword=NewsRelease.

[89] National Oceanographic and Atmospheric Administration, National Weather Service, 2003 Annual Statistics, http://www.nws.noaa.gov/om/presto/2003dectable.pdf.

[90] *See, e.g.*, www.accuweather.com, Past Weather Data for Washington, D.C.; http://www.ncdc.noaa.gov/oa/climate/online/ccd/prcpdays.html.

[91] Clarence Williams, "A Gift for M Street: Repairs Nearly Done," *The Washington Post*, December 11, 2003 at DZ04.

comprised of Verizon and all other project participants and which is responsible for project coordination – has stated publicly that the project has been successful because of the "level of cooperation" among the participants that "has helped the project run smoothly and stay on schedule" – an "especially impressive [feat] given the magnitude of this project and the diversity of the partners."[92] In fact, the Executive Management Committee of the Georgetown Project received the 2003 Team Excellence Award for Exemplary Partner from the American Association of State and Highway Transportation Officials ("AASHTO") because of the success of this "$40 million coordinated venture."[93]

63. In explaining why the Georgetown Project was worthy of such recognition, the AASHTO noted that the participants in this project established the Executive Management Committee that "coordinate[d] and combine[d] the individual projects [of the participants] into one massive effort," and that "the parties' cooperative effort condensed 10-15 years of proposed consecutive utility and DDOT upgrades into one project scheduled for completion within four years."[94] Additionally, the AASHTO also observed that because of the

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[92] http://www.thegeorgetownproject.org/displayContent.asp?Keyword=ProjectProfiles.

[93] District of Columbia Department of Transportation News Release, October 16, 2003 (http://ddot.dc.gov/news_room/2003/October/10_16_03pr.shtm) (noting that "Mayor Anthony A. Williams today congratulated the District Department of Transportation (DDOT) and the Executive Management Committee of the Georgetown Project for receiving the Team Excellence Award for Exemplary Partner from the American Association of State and Highway Transportation Officials (AASHTO)"). *See also* Councilmember Jack Evans Weekly Newsletter, Week of October 17, 2003 (congratulating the municipal agencies and "the utility companies for their dedication and commitment to making this unprecedented project a success" and noting that "[t]he level of cooperation between the six different entities has been exemplary and the Project is very deserving of such an honor in recognition of their hard work.") http://www.dccouncil.washington.dc.us/EVANS/newsletter/Week.of.10.17.03.htm.

[94] 2003 AASHTO Excellence and Innovation Awards Program at 7, attached as Attach. 1.

"high standard of cooperation and communication" during this project that minimized the impact of construction on residents and businesses, "the project enjoys a high level of credibility with the community."[95] Thus, Verizon's reliance on the Georgetown Project as evidence of the infeasibility of coordination in structure sharing arrangements is misplaced. If anything, the Georgetown Project highlights the substantial benefits that attain through coordinated, structure sharing arrangements.

64. Third, the need for security arrangements for the parties' plant and equipment does not impair opportunities for structure sharing. ILECs often implement such security arrangements – such as the placement of warning indicators or fences around excavated areas – even when they are constructing their own facilities independently. But even when a sharing agreement exists, the costs and time incurred to build fences, place warning indicators, and provide other forms of security are relatively small – and cost each participant less when shared with others.[96]

65. Fourth, the alleged "technical and safety considerations" cited by the RBOCs are both factually incorrect and highly misleading. Verizon, for example, states that such considerations "preclude placing electrical cable in the same trench with telephone cables."[97] There is no such prohibition in the industry. Under longstanding industry practice,

[95] *Id.*

[96] Security arrangements would not normally include the placement of security guards at the construction site absent unusual circumstances (such as excavation adjacent to an elementary school).

[97] Verizon at 47.

electrical cable and telephone cable may be laid in the same trench, as long as the cables are separated by a minimum distance. Based on my experience, this is a frequent practice. When parties wish to place both electrical and telephone cable in the same trench, the normal practice in the industry is to install them in the same trench, one on top of the other, with approximately one foot of sand separating the two cables.[98] If the sharing arrangement involved three parties (such as an electric company, an ILEC, and a CATV company), the parties would follow the same approach, placing the electrical cable 12 inches[99] below the other two cables (which would be on the same level and would themselves be separated by 12 inches). A page from Bell System Practices depicting the installation of electrical, telephone, and CATV cables in the same trench is attached hereto as Attachment 2.[100]

[98] Alternatively, the parties could place the cables laterally in the trench, at the same level, depending on a number of factors outlined in the National Electric Safety Code, Rules 353 & 354.

[99] Verizon argues that structure sharing is also limited because carriers and utilities prefer the "far less expensive option" of leasing individual ducts from ILECs, often "at steeply discounted rates," rather than sharing underground structure costs. Verizon at 47. Such a leasing arrangement, however, is in itself a form of structure sharing. Moreover, it is by no means clear that leasing would be less expensive in the long run than a sharing arrangement. Over time, the sum total of the monthly payments that a carrier or utility makes to an ILEC under a lease might well be greater than the costs that it would have incurred under a direct cost-sharing arrangement with the ILEC. In all events, Verizon offers no data to support its suggestion that leasing arrangements are "far less expensive" than sharing arrangements.

[100] Qwest also contends that the limited structure sharing in which CLECs have engaged demonstrates the infeasibility of structure sharing arrangements. Qwest at 34. However, the experiences of the CLECs are wholly irrelevant. The CLECs' networks are not as extensive and ubiquitous as those of the ILECs. Thus, Qwest is making an apples to oranges comparison.

IV. OUTSIDE PLANT MIX

66. Outside plant mix represents the relative proportions of aerial, buried and underground cable. True to form, the ILECs contend that their embedded plant mix is an appropriate and reasonable proxy for the structure mix that would be expected in a forward-looking network.[101] This argument is devoid of merit.

67. The appropriate mix of aerial, buried, and underground plant that an efficient carrier will deploy will depend upon a number of factors, including: whether the cable is feeder or distribution; population density; labor costs; material costs; topography; zoning rules; municipal requirements; and best engineering practices. In a forward-looking network, outside plant would be constructed in the least-cost, most efficient manner. The incumbents' embedded outside plant mix simply does not satisfy this basic test.

68. The ILECs' embedded outside plant mix is not forward-looking at all. As AT&T has explained, the ILECs' outside plant networks were deployed in a piecemeal fashion over a hundred years and could not possibly reflect the plant mix that would be employed by an efficient new carrier today. For example, much of incumbent's embedded outside plant was deployed before the development of Long Range Outside Plant Plans which standardized and formalized the outside plant planning process. These plans set forth a wide array of factors that engineers should consider when planning the outside plant architecture, including: zoning restrictions; population densities; forecasts; cable locations; utilization rates; and pair group

[101] Qwest at 36; SBC at 5, 63; Verizon at 46.

displays. As a consequence, the outside plant mix in the incumbents' embedded networks reflects *ad hoc* decisions by their engineers that would not mirror those that an efficient new carrier would make today.

69. Additionally, the incumbent's embedded outside plant mix is not forward-looking because it is constrained by the technologies, materials, tools, and manufacturing processes that were available at the time the plant was deployed. For example, much of the outside plant in the incumbents' embedded networks was deployed before development of newer cable designs such as "jelly-filled," protected, double-sheath cable that can be used in buried environments and water-blocking compounds which have made it possible for a much higher percentage of the structure in low-lying coastal suburban areas to be buried than in previous years. Against this backdrop, the ILECs cannot legitimately contend that their embedded outside plant mix is a reasonable proxy for the forward-looking mix of an efficient new carrier that would take full advantage of new cable designs.

70. Verizon claims that its embedded outside plant mix is the best source for determining forward-looking costs because, *inter alia*, it is "unlikely to change significantly at any time in the foreseeable future."[102] This statement is not true in the long-run. The composition of outside plant has been impacted and will continue to be impacted by technological changes and advances in manufacturing processes and procedures. Importantly, Verizon's assertion in this proceeding that its outside plant mix is "unlikely to change

[102] Verizon at 46.

significantly at any time in the foreseeable future" is belied by its own admission in the *Virginia Arbitration Proceeding*, where it conceded that "[t]he forward-looking network will include a different mix of . . . plant that exists in the current network."[103]

71. Furthermore, the ILECs' breezy suggestion that use of "actual" embedded outside plant mix data will somehow yield greater accuracy in TELRIC calculations is pure fantasy.[104] Absolutely no solace can or should be taken that the purported outside plant mix percentages that ILECs have proffered or would proffer in UNE proceedings supposedly reflect their actual embedded outside plant mix. As AT&T pointed out in its opening comments, when the ILECs started automating their systems in the 1990s, the only available outside plant records were unreliable and inaccurate.[105] And even when ILECs have conducted outside plant surveys purportedly to obtain accurate information regarding their networks, the survey results have been riddled with errors.

72. For example, in a number of UNE rate proceedings, Verizon has proffered its embedded outside plant mix that was purportedly extrapolated from the results of an engineering survey conducted by its outside plant engineers in the early to mid-1990s. The design of the engineering study on which Verizon so heavily relied, however, is so seriously flawed that the reported results could not possibly reflect accurate information about Verizon's embedded structure mix. As designed, the survey instructions, which directed respondents to

[103] *Virginia Arbitration Proceeding*, Verizon Post-Hearing Br. at 105.

[104] *See, e.g.*, SBC at 62.

[105] Klick Opening Decl. ¶¶ 62-63.

describe the "predominant" structure used for feeder and distribution cable within each Ultimate Allocation Area ("UAA"), invited respondents to hazard nothing more than guesses regarding "the most likely type of structure that the next proposed cable will require."[106] If, on the basis of subjective judgment, an engineer "believe[d] that the predominant structure mix was underground, the survey recorded that 100% of the structure in the particular UAA was, in fact, underground structure."[107] The survey default also treated *all* distribution structure as buried whenever the survey respondent failed to specify the so-called "predominant" distribution structure type.[108] And, unfortunately, because the documents underlying the survey no longer exist, it is impossible to verify the full extent to which the survey results reflect inaccuracies or inefficiencies in Verizon's structure mix.

73. Thus, the outside plant mix that Verizon has proffered in UNE rate proceedings has been premised on a seriously flawed engineering survey which elicited nothing more than a grab-bag of guesses by independent Verizon employees about which structure would be used for whatever cable Verizon happened to have in its pipeline years ago. And when Verizon employees could not even hazard a guess regarding the predominant structure in the particular UAA, the survey default treated all distribution structure as buried. Because the incumbent's outside plant mix data are highly untrustworthy and unreliable, they cannot

[106] *Pennsylvania UNE Proceeding*, Verizon Stmt. 1.1 (Recurring Cost Panel Sur.), Attachment G at 4.

[107] *Virginia Arbitration Proceeding*, Tr. 4144-4145.

[108] *Pennsylvania UNE Proceeding*, AT&T/WCOM Stmt. 3.1 (Riolo Sur.) at 16-17.

seriously contend that their actual outside plant mix data will yield greater accuracy in cost calculations.

74. Furthermore, because ILECs are the only parties that possess data on their structure mix, reliance on the ILECs' embedded plant mix would place CLECs, as well as regulators, at a significant disadvantage in verifying the ILECs' data. And given this disparity in information, the ILECs would have strong incentives to massage their data to their advantage.

V. PLACEMENT COSTS

75. SBC and Qwest assert that the incumbent's "real-world" (*i.e.,* embedded) placement costs should be used in determining loop costs.[109] In that connection, Qwest states that placement "costs cannot be based on hypothetical assumptions, but 'must be representative of the real world' and 'based upon the incumbent LEC's actual' …experience."[110] Like their other embedded costs, the use of the ILECs' "real-world" placement costs would be inappropriate in any determination of forward-looking costs.

76. The incumbent's embedded placement costs are not forward-looking because they are significantly constrained by the incumbents' existing networks. Plant placement costs are a function of any number of factors, including network routing and labor costs associated with plant installation. However, as AT&T has shown, an efficient new entrant entering the market today would not use the same serving areas, FDIs, SAIs, and remote

[109] SBC at 59-60; Qwest at 34-36.

[110] Qwest at 59.

terminals as those in the ILECs' existing networks, given current service demand patterns and customer locations.[111] The incumbent's embedded networks have duplicative sheaths along many routes as a result of plant reinforcement and use of copper and fiber on the same route. In stark contrast, a TELRIC model should produce significantly less sheath distance than an embedded network because the model designs routes efficiently, rather than piecemeal to address incremental demand as it develops. Clearly, placement costs that are tethered to the ILECs' routing assumptions would merely replicate the inefficiencies of the ILECs' existing networks.[112]

77. Similarly, the incumbent's embedded placement costs reflect decisions made at a time when different manufacturing and technology options existed and the costs of labor and equipment were quite different than they are today. For example, outside plant construction labor costs have been impacted by the tools required to perform the wire joining/splicing tasks. Substantial portions of copper wires in the incumbents' existing plant were joined by twisting two wires together by hand – a relatively slow and costly process. In stark contrast, an efficient new entrant can accomplish the same task by using a connector that accepts 25 pairs at a time, thereby dramatically reducing the costs and time associated with the wire joining/splicing process.

[111] Riolo Opening Decl. ¶ 134.
[112] *Id.*

78. Additionally, reliance on the ILECs' embedded replacement costs would reflect the ILECs' historical practices of installing poles on a piecemeal basis, resulting in costs that are higher than those that are incurred when pole installations are planned in advance. The unit costs of such piecemeal placements do not reflect the economies of scale attainable from the large-scale installation jobs that an efficient new entrant would undertake. Indeed, pole installations in a forward-looking environment would capture the efficiencies realized from sequential installation and minimization of mobilization and demobilization. Hence, use of the ILECs' embedded placement costs would grossly overstate the costs that an efficient new entrant would incur that would seek to maximize the efficiencies and economies associated with planned pole installations.

79. In attempting to buttress its argument that UNE rates should be based upon embedded placement costs, SBC contends that the CLECs' placement assumptions ignore existing conditions and real world factors that affect placement costs. For example, SBC argues that the CLECs' cost models have attempted to minimize placement costs by advocating the use of "cheap placement methods (such as 'plowing') in modeling the costs of laying cable in highly developed areas, even though no real-world carrier could ever hope to 'plow' and then 'backfill' a paved city street."[113] Based on my experience in UNE rate cases, this is untrue.

[113] SBC at 60.

80. TELRIC models account for an impressive array of conditions that affect placement costs.[114] As AT&T has explained, the HAI model, for example, determines placement methods based on a variety of factors, including topography, zoning restrictions, and best engineering practices.[115] The HAI model also accounts for the cost effects of terrain by recognizing that excavation of streets and boring through concrete are more expensive than using aerial or buried structure. Modern TELRIC models also account for other factors such as population density, labor, and material costs that can vary by state and locality.[116]

81. Qwest contends that adoption of the incumbent's unit costs of placement is necessary because state commissions, including the Arizona Corporation Commission ("ACC"), have erroneously endorsed the CLECs' "time machine approach" which assumes that all cable was placed prior to the existence of streets, sidewalks, and landscaping in Arizona. Qwest at 36. These arguments are meritless.

82. The ACC determined that certain of Qwest's cable placement assumptions were unfounded. In that proceeding, Qwest assumed that a substantial percentage of the cable in rural and suburban areas of Arizona would require the excavation and restoration of streets and sidewalks, as well as landscaping. As the ACC Staff pointed out, Qwest's assumptions were entirely unrealistic.[117] In the most rural areas of Arizona, there are few, if any, asphalt roads or

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[114] Bryant Essay at 11-12.

[115] AT&T at 57.

[116] Klick Opening Decl. ¶¶ 45-74.

[117] *See Qwest v. Arizona Corporation Commission*, Case No. CIV-02-1626 PHX SRB (D.

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concrete sidewalks that cannot be avoided, and there is virtually no landscaping. And, even in suburban areas, buried cable can be placed in dirt along side roads.[118] The ACC ultimately determined that, with respect to buried cable, "Qwest's . . . inputs overstate the costs attributable to placement of cable in a forward-looking environment," and that "the HAI model relies on . . . reasonable assumption[s]."[119] Thus, contrary to Qwest's claims, neither the CLECs nor the ACC ignored existing conditions, and the ACC correctly concluded that Qwest's placement costs for buried cable were unsupportable.

83. In its recent appeal of the ACC's UNE rate decision, Qwest contended that the loop rates adopted by the ACC were grossly understated because they erroneously assumed "that most of the roads in downtown Phoenix and Tucson are made of dirt."[120] This argument was plainly incorrect. In fact, the ACC's decision assumed that there were no dirt roads in downtown Phoenix and Tucson.[121] Thus, Qwest's claim that the ACC's decision in this Arizona UNE rate case is a prime example of a State's inability to implement the TELRIC rules properly is sheer nonsense.

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Arizona) ("*Qwest v. ACC*"), Response to Plaintiff's Opening Brief of Intervenor/Defendants AT&T Communications of the Mountain States, Inc., MCI WorldCom Network Services, Inc., and MCI METRO Access Transmission Services LLC, filed February 28, 2003, at 17-18.

[118] *Id.*

[119] *Arizona Cost Docket*, *Phase II Order* at 12.

[120] Qwest Opening Br. on the Merits, *Qwest v. ACC,* at 16 (filed December 20, 2002).

[121] *Id.*

84. There are other significant problems with using the ILECs' "actual" placement costs in calculating UNE rates. As noted above, placement costs can vary depending upon any number of factors, including geography, labor and material costs, terrain, population density, and the characteristics of the cables and supporting structures.[122] The accounting records maintained by the ILECs, which are wholly unreliable, do not capture geographic cost differences and otherwise lack the detailed granular information required to determine placement costs. And, because the incumbents possess the data on their placement costs, this asymmetry in UNE cost information places CLECs and regulators at a considerable disadvantage when attempting to verify the ILECs' costs. Because of this informational disparity, an ILEC necessarily has incentives to manipulate its cost information to suit its purposes.

VI. LOOP CONDITIONING

85. Verizon and BellSouth argue that the Commission should continue to allow ILECs to charge CLECs for conditioning loops, because loop conditioning is a cost that the ILECs actually incur as a result of the CLEC's request for conditioning.[123] These RBOCs, however, miss the point. ILECs incur these costs, and CLECs are required to compensate the ILECs for them, *only* because the ILECs have failed to implement CSA guidelines that have called for the elimination of load coils and excessive bridged taps for more than 20 years.[124] If

[122] Bryant Essay at 3.

[123] Verizon at 88; BellSouth at 49. SBC simply cites loop conditioning charges as an example of non-recurring charges that the Commission's current rules authorize even though a "cutting-edge network built today" would not do so. SBC at 81. As discussed in the Murray Reply Declaration, however, the Commission should reverse its previous ruling, because it is flatly inconsistent with forward-looking principles.

[124] *See* Riolo Opening Decl. ¶¶ 144-146.

these guidelines had been followed, few (if any) loops would require conditioning. CLECs should not be required to pay for the ILECs' failure to implement the forward-looking approach called for by the industry guidelines.[125]

86. BellSouth further argues that "if there is no financial incentive to judiciously request conditioning, the CLECs will not be deterred from making unnecessary requests, which may ultimately damage the voice grade network."[126] This argument makes no sense. First, as previously stated, if the ILECs had implemented industry guidelines, little or no loop conditioning would currently be performed – and there would be no need for a "financial incentive" for CLECs.

87. Second, it is difficult to understand BellSouth's suggestion that CLECs would make "unnecessary requests" for loop conditioning. CLECs request the removal of excessive bridged taps and load coils only when they need to do so, as when a customer requests DSL service. The notion that a CLEC would gratuitously submit a request for conditioning is preposterous. A request for conditioning substantially delays the provisioning of a loop order (by as much as three to four months) beyond the provisioning intervals that would be experienced when conditioning is not requested. Moreover, making a request for conditioning causes a CLEC to incur substantial additional internal costs, such as the costs of preparing,

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[125] Verizon itself removes excessive bridged taps for CLECs at no cost in cases when the tap exceeds CSA guidelines (which allow bridged taps only if they do not exceed 2,500 feet, and prohibit any single bridged tap from exceeding 2,000 feet in length).

[126] BellSouth at 49.

submitting, and tracking the request. Given these additional delays and internal costs, a CLEC would not order conditioning unless there was a *bona fide* need for it.

88. Although BellSouth does not define the "unnecessary" requests to which it refers, it is possible that these are requests that CLECs make for the removal of bridged taps which, due to their amount and proximity to the transmitting equipment, cause an intolerable level of errors on high-speed service lines. I do not regard these requests, however, as "unnecessary." They are made for the purpose of ensuring quality service to customers.

89. Third, BellSouth's assertion that such "unnecessary" requests "may ultimately damage its voice grade network" borders on the frivolous. BellSouth does not describes the particular "damage" that it fears. Nor does BellSouth explain why such damage would result from excessive requests from the CLECs, and not from its own retail operations (whose loops it also conditions when necessary to provide a variety of special services, including DSL service).

90. In reality, loop conditioning can, and does, *improve* the quality of an ILEC's network. There are several types of conditioning that could occur in connection with the ILEC's existing plant configuration. Although some conditioning deals with the removal of obsolete technology (such as voice grade repeaters), the most common forms of conditioning are load coil removal and bridged-tap removal. Far from damaging the ILEC's network, the removal of bridged taps clearly *improves* network performance and reliability from an engineering and operational perspective, because it reduces the potential problems that can result

from bridged taps (including loss of service, greater maintenance, weaker signals, slower speed, and degraded transmission). Similarly, ILECs such as BellSouth typically remove load coils from copper loops longer than 18,000 feet in order to provision a variety of special services circuits on long copper loops.[127]

91. In any event, BellSouth's professed fear of damage to its voice grade network is inconsistent with its refusal to implement the CSA guidelines. If loop conditioning truly posed a danger of damaging its network, BellSouth would have designed its network in accordance with the CSA guidelines – which would have minimized (if not totally eliminated) the risk of such damage.

VII. CROSS-CONNECTS

92. Qwest states that "it is not true, as claimed by CLECs, that once installed, a cross-connect can always be used for succeeding customers."[128] Although Qwest does not elaborate, situations where the cross-connect cannot be used by a subsequent customer are rare. Generally, a cross-connect stays in place when a customer vacates the premises. Qwest itself admits that in such circumstances, "carriers keep the line connected to the switch – an efficient practice assumed by the CLECs' proposed NRCs."[129] On the basis of my experience, cross-

[127] ILECs have typically incorporated load coils into voice frequency design for copper loops in excess of 18,000 feet – even though CSA design limits specify that the length of copper loops should not exceed 12,000 feet. Although the removal of load coils from copper loops greater than 18,000 feet would generally render them unavailable for voice service, such removal would enable the ILEC to use the loop to provide special services, including DSL.

[128] Qwest at 56.

[129] *Id.* at 41.

connects are disconnected only in unusual circumstances, as when the line requires maintenance, or when the premises are being demolished and the facilities are being rearranged.

VERIFICATION PAGE

I declare under penalty of perjury that to the best of my knowledge the foregoing Reply Declaration is true and correct.

/s/ Joseph P. Riolo
Joseph P. Riolo

Executed on: January 30, 2004